

CLAIMS

What is claimed is:

1. A method for oxidizing one of a gate dielectric layer and a cell dielectric layer on a portion of a silicon substrate in an atmosphere comprising:
raising the temperature of said silicon substrate to a temperature of at least about 600°C.;
providing a gas atmosphere of N₂O, said gas atmosphere of N₂O having a pressure of at least about five atmospheres for contacting at least a portion of said silicon substrate; and
contacting a portion of said gas atmosphere of N₂O with a catalytic matrix consisting of one or more metals..
2. The method according to claim 1, further comprising:
forming an oxide layer on said one of a gate dielectric layer and a cell dielectric layer on a portion of said silicon substrate.
3. The method according to claim 1, further comprising:
forming an oxide layer on a portion of said silicon substrate.
4. The method according to claim 1, further comprising:
oxidizing a tantalum oxide layer on a portion of said silicon substrate.
5. The method according to claim 1, further comprising:
forming a barium strontium titanium oxide layer on a portion of said silicon substrate.
6. The method according to claim 1, further comprising:
forming a strontium bismuth titanate oxide layer on a portion of said silicon substrate.

7. The method according to claim 1, wherein said catalytic matrix is selected from the group consisting of lead, platinum, iridium and palladium.

8. The method according to claim 1, wherein said catalytic matrix is selected from the group consisting of rhodium, nickel, and silver.

9. A method for oxidizing a portion of a silicon substrate comprising:
changing the temperature of said silicon substrate to a temperature in a range of about 600°C. to 800°C.;
providing a gas atmosphere of N₂O, said gas atmosphere of N₂O having a pressure of at least about five atmospheres; and
contacting a portion of said gas atmosphere of N₂O with a catalytic matrix consisting of at least one metal.

10. The method according to claim 9, further comprising:
forming a nitride layer on a portion of said silicon substrate.

11. The method according to claim 9, further comprising:
forming an oxide layer on a portion of said silicon substrate.

12. The method according to claim 9, further comprising:
forming a tantalum oxide layer on a portion of said silicon substrate.

13. The method according to claim 9, further comprising:
forming a barium strontium titanium oxide layer on a portion of said silicon substrate.

14. The method according to claim 9, further comprising:
forming a strontium bismuth titanate oxide layer on a portion of said silicon substrate.

15. The method according to claim 9, wherein said catalytic matrix is selected from the group consisting of lead, platinum, iridium and palladium.

16. The method according to claim 9, wherein said catalytic matrix is selected from the group consisting of rhodium, nickel, and silver.

17. A method for oxidizing a portion of a silicon substrate comprising:
providing an atmosphere having a temperature of at least about 600°C.;
providing a gas atmosphere of N₂O, said gas atmosphere of N₂O having a pressure of at least about five atmospheres;
contacting at least a portion of said silicon substrate with a portion of said gas atmosphere of N₂O having a pressure of at least about five atmospheres; and
contacting a portion of said gas atmosphere of N₂O with a catalytic matrix consisting of at least one metal.

18. The method according to claim 17, further comprising:
forming at least one of a nitride layer on a portion of said silicon substrate, oxide layer on a portion of said silicon substrate, a tantalum oxide layer on a portion of said silicon substrate, a barium strontium titanium oxide layer on a portion of said silicon substrate, and a strontium bismuth titanate oxide layer on a portion of said silicon substrate.

19. The method according to claim 17, wherein said catalytic matrix is selected from the group consisting of lead, platinum, iridium and palladium.

20. The method according to claim 17, wherein said catalytic matrix is selected from the group consisting of rhodium, nickel, and silver.